In the Claims:

The following list of claims will replace all prior versions of the claims in the application.

1. (*Cancelled*)

2. (*Previously added*) A method for assessing toxicity and toxicology of a compound, comprising:

   a) exposing a set of genes to a compound;

   b) monitoring the response of each gene in the set of genes to the compound;

   c) creating gene expression profiles using two or more variables;

   d) creating composite variables from the gene expression profiles of (c);

   e) creating one composite from the composite variables of (d); and

   f) comparing the results of (e) to a profile of a known compound.

3. (*Previously added*) The method of Claim 2, wherein the set of genes comprises 10-100,000 genes.

4. (*Previously added*) The method of Claim 2, wherein the variables are time, treatment or dose.

5. (*Previously added*) The method of Claim 4, wherein the variables of (c) are dose and time.

6. (*Previously added*) The method of Claim 2, wherein the response of the genes is averaged.

7. (*Currently amended*) The method of Claim 2, wherein ~~the gene expression profiles are created using~~ step (c) comprises performing contrast analysis.

8. (*Currently amended/ Withdrawn*) The method of Claim 2, wherein ~~the gene expression profiles are created using~~ step (c) comprises performing cluster analysis.

9. (*Currently amended*) The method of Claim 2, wherein ~~the gene expression profiles of~~ step (d) ~~are created using~~ comprises performing principal ~~component~~ components analysis, ~~partial least squares, or factor analysis~~.

10. (*Previously added*) The method of Claim 2, wherein the composite variables of (e) are created using logistic regression, or discriminant analysis.

11. (*Currently amended*) A method for screening a compound for a toxicological effect, comprising

(a) selecting a plurality of polynucleotide targets wherein the polynucleotide targets have a first gene expression levels altered in tissues treated with known toxicological agents;

(b) treating a second tissue sample with a compound to be tested to induce second gene expression levels of a plurality of polynucleotide;

(c) comparing the first expression level of (a) with the second expression level of (b) to generate a measure of similarity.

12. (*Currently amended*) The method of Claim 11, wherein the similarity ~~of the first expression level to the second expression level~~ correlates with a toxicological effect.

13. (*Previously added*) The method of Claim 11, wherein the tissue samples are liver, kidney, brain, spleen, pancreas and lung.

14. (*Previously added*) The method of Claim 11, wherein the known toxicological agent is acetaminophen.

15. (*Withdrawn*) The method of Claim 11, wherein the known toxicological agent is CCl_4.

Claims 16 – 22 (*Cancelled.*)

23. (*New/Withdrawn*) The method of Claim 2, wherein step (d) comprises performing partial least squares analysis.

24. (*New/Withdrawn*) The method of Claim 2, wherein step (d) comprises performing factor analysis.

25. (*New*) The method of Claim 1, wherein the compound is acetaminophen.

26. (*New*) A method for assessing toxicity and toxicology of a compound, comprising:

   a) exposing a set of genes to a compound;

   b) generating gene expression data corresponding to the response of each gene in the set of genes to the compound;

   c) selecting a subset of the gene expression data which are time stable and dose dependent;

   d) combining the subset of gene expression data into one or more composite variables to assign each gene to a pattern; and

e) converting the one or more composite variables into one predictive composite measure for determining a probability of similarity;

wherein the one predictive measure .

27. (*New*) The method of claim 26, wherein step (c) comprises performing contrast analysis.

28. (*New*) The method of claim 26, wherein step (d) comprises performing principal components analysis.

29. (*New*) The method of claim 28, wherein step (e) comprises performing a logistic regression using the principal components identified in step (d).